Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) An ~~spectroscope~~ apparatus for detecting vulnerable plaque within a lumen defined by an intraluminal wall, the ~~spectroscope~~ apparatus comprising:

a probe having

an optical fiber extending therethrough, and

an atraumatic light-coupler in optical communication with the optical fiber, the coupler being configured to atraumatically contact the intraluminal wall;

a light source in optical communication with the fiber for illuminating the wall; and

a detector in optical communication with the fiber for detecting light from within the wall.

2. (currently amended) The ~~spectroscope~~ apparatus of claim 1, wherein the probe further comprises a jacket enclosing the fiber.

3. (currently amended) The ~~spectroscope~~ apparatus of claim 2, wherein the jacket comprises a coil-wire wound into a coil-wire jacket.

4. (currently amended) The ~~spectroscope~~ apparatus of claim 3, wherein the jacket comprises a coil wire having a variable diameter.

5. (currently amended) The ~~spectroscope~~ apparatus of claim 1, wherein the probe comprises a plurality of optical fibers.

6. (currently amended) The ~~spectroscope~~ apparatus e of claim 1, wherein the probe resiliently assumes a preferred shape.

7. (currently amended) The ~~spectroscope~~ apparatus of claim 6, wherein the preferred shape comprises a bow.

8. (currently amended) The ~~spectroscope~~ apparatus of claim 6, wherein the preferred shape comprises an arc.

9. (currently amended) The ~~spectroscope~~ apparatus of claim 6, wherein the preferred shape comprises a portion of a catenary curve.

10. (currently amended) The ~~spectroscope~~ apparatus of claim 1, wherein the atraumatic coupler is disposed at a distal tip of the probe.

11. (currently amended) The ~~spectroscope~~ apparatus of claim 10, wherein the atraumatic coupler comprises a lens attached to the distal tip of the optical fiber.

12. (currently amended) The ~~spectroscope~~ apparatus of claim 10, wherein the atraumatic coupler is integral with the optical fiber.

13. (currently amended) The ~~spectroscope~~ apparatus of claim 12, wherein the atraumatic coupler comprises a distal tip of the optical fiber.

14. (currently amended) The ~~spectroscope~~ apparatus of claim 1, wherein the atraumatic coupler is disposed along a side of the probe.

15. (currently amended) The ~~spectroscope~~ apparatus of claim 14, wherein the atraumatic coupler comprises a window along a side of the probe.

16. (currently amended) The ~~spectroscope~~ apparatus of claim 15, further comprising a diffraction grating in optical communication with the window.

17. (currently amended) The ~~spectroscope~~ apparatus of claim 14, wherein the atraumatic coupler comprises:

a window along a side of the probe, and

a beam re-director providing optical communication between the window and a distal tip of the fiber.

18. (currently amended) The ~~spectroscope~~ apparatus of claim 17, wherein the beam re-director comprises a prism.

19. (currently amended) The ~~spectroscope~~ apparatus of claim 14, wherein the atraumatic optical coupler comprises:

a window along the side of the probe, and

a distal face of the optical fiber, the face being oriented to provide optical communication with the window.

20. (currently amended) The ~~spectroscope~~ apparatus of claim 1, wherein the light source comprises a near infrared light source.

21. (currently amended) The ~~spectroscope~~ apparatus of claim 1, further comprising a processor in data communication with the detector, the processor being configured to identify a vulnerable plaque on the basis of a signal provided by the detector.

22. (currently amended) The ~~spectroscope~~ apparatus of claim 1, further comprising a cannula through which the probe passes.

23. (currently amended) The ~~spectroscope~~ apparatus of claim 22, wherein the probe is integral with the cannula.

24. (currently amended) The ~~spectroscope~~ apparatus of claim 22, wherein the optical fiber is embedded within the cannula.

25. (currently amended) The ~~spectroscope~~ apparatus of claim 22, wherein the cannula comprises walls forming a channel through which the probe passes, the channel being conformal to the cannula.

26. (currently amended) The ~~spectroscope~~ apparatus of claim 25, wherein the cannula has a tapered distal opening such that the channel has an opening facing a longitudinal axis of the cannula.

27. (currently amended) The ~~spectroscope~~ apparatus of claim 25, wherein the cannula has a flared distal opening such that the channel has an opening facing away from a longitudinal axis of the cannula.

28. (currently amended) The ~~spectroscope~~ apparatus of claim 1, further comprising a hub to which a distal end of the probe is attached.

29. (currently amended) The ~~spectroscope~~ apparatus of claim 28, further comprising a cannula through which the hub and the probe pass.

30. (currently amended) The ~~spectroscope~~ apparatus of claim 29, wherein the probe resiliently assumes a bow shape for contacting the intraluminal wall at a point of inflection thereof.

31. (currently amended) The ~~spectroscope~~ apparatus of claim 30, wherein the coupler is disposed at the point of inflection.

32. (currently amended) The ~~spectroscope~~ apparatus of claim 1, further comprising a spacer attached to the probe for maintaining a preferred relative position of the probe.

33. An ~~spectroscope~~ apparatus for detecting vulnerable plaque within a lumen defined by an intraluminal wall, the ~~spectroscope~~ apparatus comprising:

a cannula having a longitudinal axis;

a plurality of probes extending through the cannula, each probe having

an optical fiber extending therethrough, and

an atraumatic light-coupler in optical communication with the optical fiber, the coupler being configured to atraumatically contact the intraluminal wall.

34. (currently amended) The ~~spectroscope~~ apparatus of claim 33, further comprising a spacer ring attached to each of the probes for maintaining the positions of the probes relative to each other.

35. (currently amended) The ~~spectroscope~~ apparatus of claim 33, further comprising a hub attached to a distal end of each of the probes.

36. (currently amended) The ~~spectroscope~~ apparatus of claim 35, wherein the distal end of the probe is attached to the hub at an anchor point that is circumferentially offset from a proximal portion of the probe.

37. (currently amended) The ~~spectroscope~~ apparatus of claim 35, further comprising a spacer ring attached to each of the probes for maintaining the positions of the probes relative to each other.

38. (currently amended) The ~~spectroscope~~ apparatus of claim 35, wherein each of the probes resiliently assumes a bow shape having a point of inflection between the hub and the cannula.

39. (currently amended) The ~~spectroscope~~ apparatus of claim 33, wherein each of the probes resiliently assumes a desired shape.

40. (currently amended) The ~~spectroscope~~ apparatus of claim 33, wherein the atraumatic coupler comprises means for providing optical communication between the optical fiber and the intraluminal wall.

41. (currently amended) The ~~spectroscope~~ apparatus of claim 33, wherein at least one of the plurality of probes is integral with the cannula.

42. (currently amended) The ~~spectroscope~~ apparatus of claim 33, wherein the optical fiber is embedded within the cannula.

43. (original) A method of detecting vulnerable plaque within an intraluminal wall, the method comprising:

placing an atraumatic light coupler in contact with the intraluminal wall;

passing light through the intraluminal wall by way of the atraumatic light coupler;

receiving light from within the intraluminal wall by way of the atraumatic coupler; and

providing the received light to a processor for analysis to identify the presence of a vulnerable plaque.

44. (original) The method of claim 43, wherein placing an atraumatic light coupler in contact with the intraluminal wall comprises placing a distal end of a probe in contact with the intraluminal wall.

45. (original) The method of claim 43, wherein placing an atraumatic light coupler in contact with the intraluminal wall comprises placing a side of a probe in contact with the intraluminal wall.

46. An ~~spectroscope~~ apparatus for detecting vulnerable plaque within a lumen defined by an intraluminal wall, the ~~spectroscope~~ apparatus comprising:

a probe having

an optical fiber extending therethrough, and

means for atraumatically contacting the intraluminal wall, the contacting means including means for providing optical communication with the intraluminal wall;

a light source in optical communication with the fiber for illuminating the wall; and

a detector in optical communication with the fiber for detecting light from within the wall.

47. (currently amended) The ~~spectroscope~~ apparatus of claim 46, wherein the means for atraumatically contacting the intraluminal wall comprises a rounded surface at a distal tip of the probe.

48. (currently amended) The ~~spectroscope~~ apparatus of claim 47, wherein the rounded surface comprises a surface of a lens attached to the fiber.

49. (currently amended) The ~~spectroscope~~ apparatus of claim 48, wherein the means for providing optical communication comprises the lens.

50. (currently amended) The ~~spectroscope~~ apparatus of claim 47, wherein the rounded surface comprises a surface of the fiber.

51. (currently amended) The ~~spectroscope~~ apparatus of claim 43, wherein the means for providing optical communication comprises the fiber.

52. (currently amended) The ~~spectroscope~~ apparatus of claim 46, wherein the means for atraumatically contacting the intraluminal wall comprises a side-window along a side of the probe.

53. (currently amended) The ~~spectroscope~~ apparatus of claim 52, wherein the means for providing optical communication comprises a reflective surface in optical communication with the side-window and with a face of the fiber.

54. (currently amended) The ~~spectroscope~~ apparatus of claim 52, wherein the means for providing optical communication comprises an angled face of the fiber.

55. (currently amended) The ~~spectroscope~~ apparatus of claim 52, wherein the means for providing optical communication comprises a diffraction grating in optical communication with the side-window and with the fiber.